BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

(12) UK Patent Application (19) GB (11) 2 162 234 A

(43) Application published 29 Jan 1986

(21) Application No 8418949

(22) Date of filing 25 Jul 1984

(51) INT CL[4]
E05C 3/26

(52) Domestic classification
E2A 106 191 196 432 505 521 CAQ
U1S 1854 E2A

(56) Documents cited
GB 1569095

(58) Field of search
E2A

(71) Applicant
The Bloxwich Lock and Stamping Co Limited,
(United Kingdom),
P. O. Box No 4, Alexander Works, Bloxwich,
Walsall WS3 2JR

(72) Inventors
Barry Stanley Morris,
William Scott Allport

(74) Agent and/or Address for Service
Barker Brettell & Duncan,
138 Hagley Road, Edgbaston, Birmingham B16 9PW

(54) Releasable fastening mechanism for vehicle tilting cabs, bonnets or boots

(57) The fastening has a latch (6) pivoted to a mounting (1) by a pivot pin (7) and cooperating with a striker (5). A locking pawl (9) biassed by a spring (17) normally holds the latch (6) against pivoting so as to retain striker (5) trapped in a mouth (8) of the mounting. A detent lever (15) is pivoted at its mid-point (16) on the mounting, and a hooked end (21) is engageable with a pin (23) on the locking pawl to hold the pawl inoperative as soon as the pawl has been released from the jaw by actuation of the associated hydraulic or cable actuator. This prevents the mechanism from re-locking before the striker has left the mouth (8), to prevent mechanical damage, but as the striker leaves the mouth it engages with one end (24) of the detent lever (15) to disengage the hooked end (21) from the pin (23), thereby releasing the pawl for subsequent re-locking of latch (6) when the striker is urged back into the mouth (8).

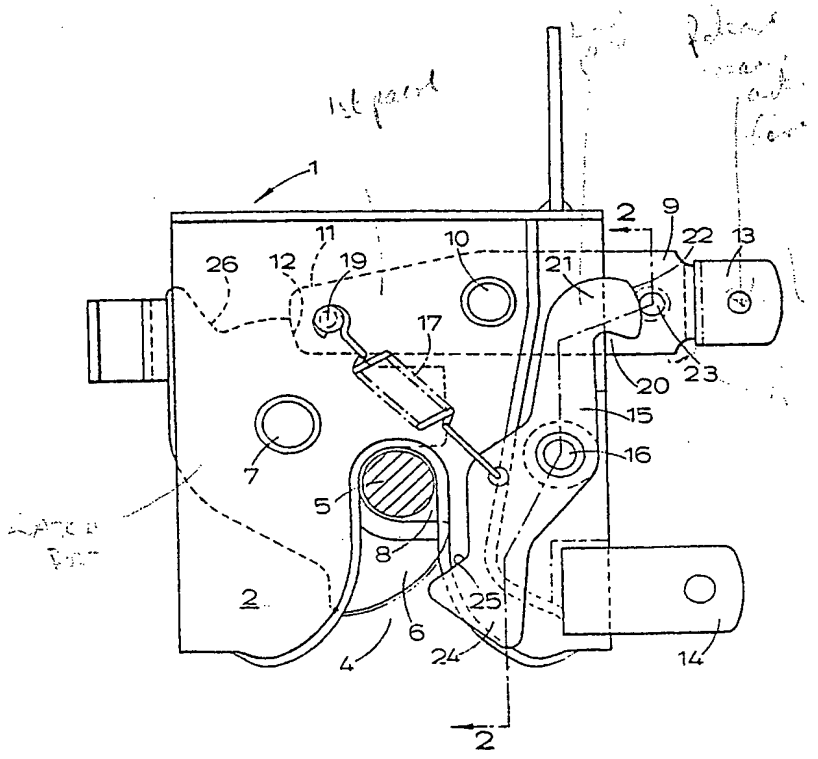

FIG.1.

2162234

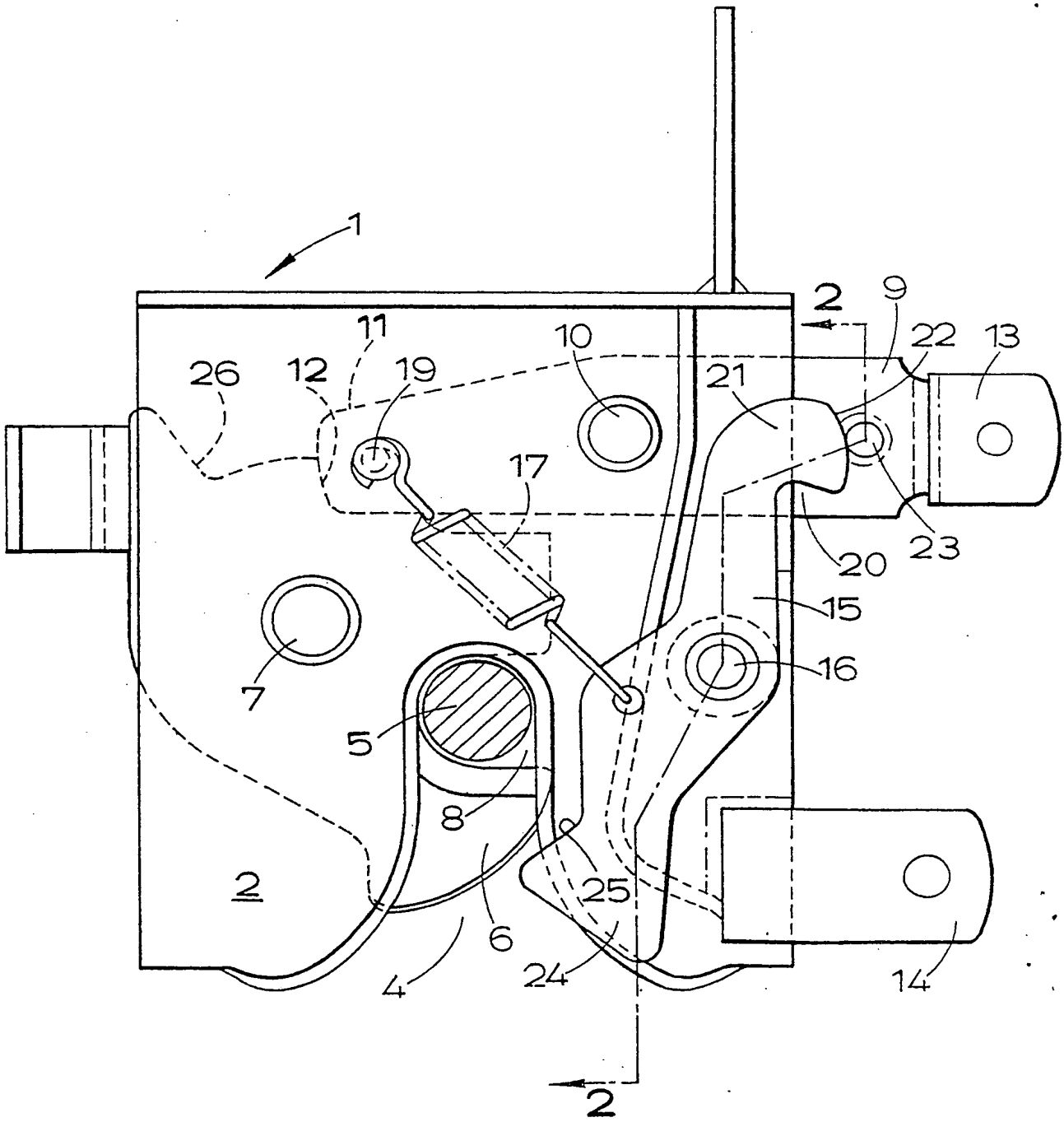

FIG.1.

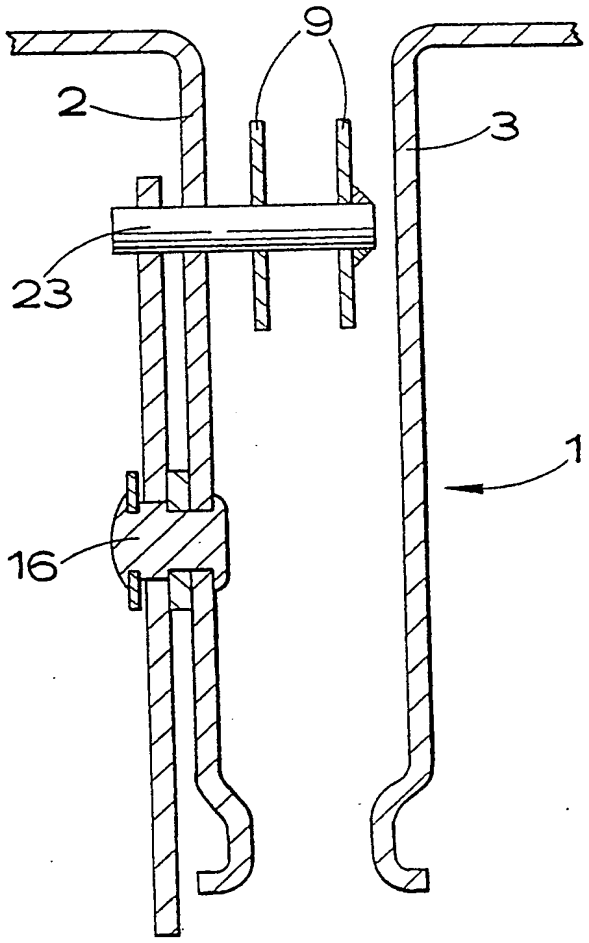

FIG. 2.

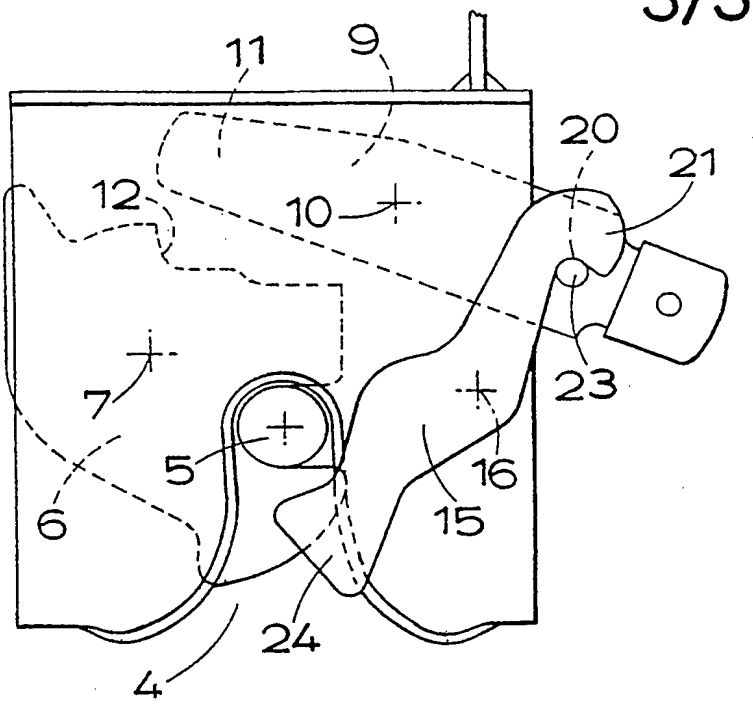

FIG.3.

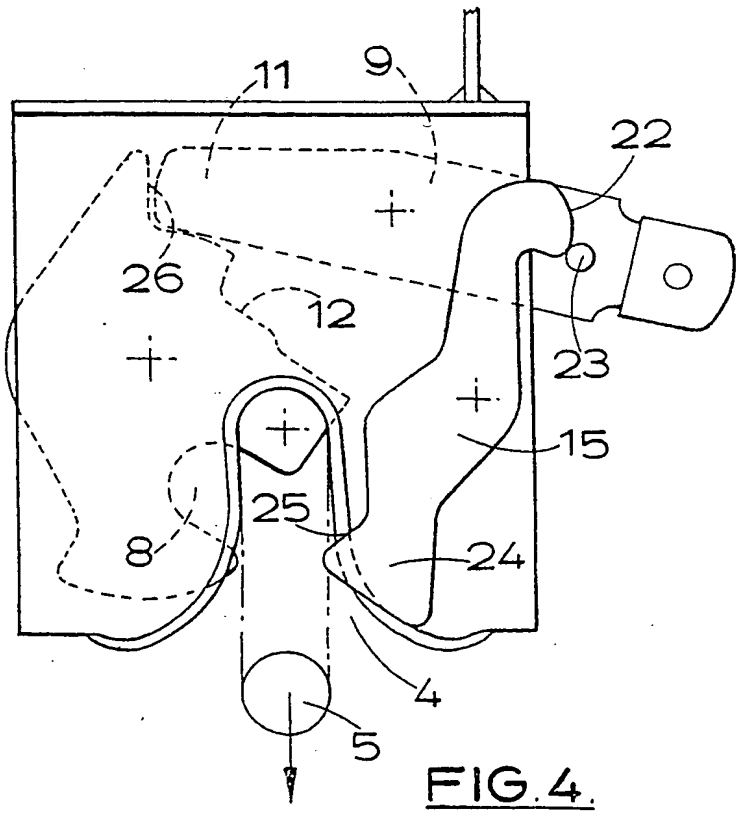

FIG.4.

SPECIFICATION

Releasable fastening mechanism for vehicle tilting cabs, bonnets or boots

This invention relates to releasable fastening mechanisms primarily for tilting cabs on vehicles, but which may in some cases be used on a vehicle bonnet or boot.

In commercial vehicles having forwardly mounted engines it is common practice to hinge the cab at its forward end on the chassis so that the cab can be tilted forwards to give access to the engine and ancillary mechanism. A strong torsion bar or spring has usually been provided to assist the forward tilting movement, by counterbalancing the weight of the cab. The possible unloading of the torsion bar or spring in the event of a collision can be dangerous. There is now a move towards replacing spring biassing of the cab by the use of hydraulic cylinders. This presents a problem with regard to the fastening mechanism which normally retains the cab in its rearward position, in that if the release member of the fastening mechanism is actuated prior to operating the hydraulic cylinder but is inadvertently de-actuated before the cylinder is operated, the fastening mechanism may automatically lock again, so that when the hydraulic cylinder is finally operated, the hydraulic lifting pressure breaks the locked fastening mechanism.

Similar problems can arise with a heavy bonnet or boot, especially when it carries a spare wheel.

According to the invention a releasable fastening mechanism of the kind set forth comprises a mounting for securing to the pivoted assembly or vehicle structure and a striker for securing respectively to the vehicle structure or pivoted assembly respectively, the mounting being formed with an entry slot to receive the striker, a pivotally mounted locking jaw arranged to be engaged and rotated by the striker to close over and retain the striker in the entry slot, a locking pawl resiliently urged towards the locking jaw for normally engaging a first formation on the jaw to retain the locking jaw in its closed position, an operating mechanism for releasing the locking pawl from its normal, operative position, and a resiliently biassed detent arranged to engage a second formation on the pawl when the locking pawl is moved to a released position thereby to prevent the locking pawl from immediately moving back to its operative position, the detent being arranged to be moved to a released position on engagement by the striker as the striker leaves the entry slot, thereby releasing the locking pawl for cooperation with the jaw.

With this arrangement the detent will prevent the locking pawl from moving back to an operative position once it has been released by the operating mechanism in the event that the operating mechanism is de-actuated, until the striker has moved to a released position, but as the striker leaves the entry slot the detent is released, thereby automatically releasing the locking pawl, so that when the cab or other pivoted assembly is later moved back to its normal position the fastening mechanism will automatically lock again as the striker passes into the entry slot.

The detent is preferably pivoted on the mounting at an intermediate position in its length and has one end positioned adjacent to the mouth of the entry slot for engagement by the striker as the striker leaves the slot, the opposite end being arranged to provide the engagement with the second formation on the locking pawl.

The locking pawl is preferably also pivoted on the mounting at an intermediate position in its length, one end of the locking pawl being arranged to provide the engagement with the first formation on the jaw, and the other end of the locking pawl carrying the second formation.

The second formation is preferably a pin on the locking pawl, and the portion of the detent which cooperates with the locking pawl is hook-shaped to engage around the pin.

The locking pawl is preferably operated by a cable, but it may be operated by the controls for a hydraulic cylinder arranged to tilt the cab,

A fastening mechanism for a vehicle tilting cab and in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawings in which:-

Figure 1 is a side elevation of the mechanism in its normal, fastened condition;

Figure 2 is a section on the line 2-2 of Figure 1, but omitting the locking jaw;

Figure 3 is a view similar to Figure 1, but on a smaller scale, showing the condition of the mechanism when the locking pawl has been released, but prior to lifting of the vehicle cab; and

Figure 4 is a view similar to Figure 3 showing release of the striker as the cab is lifted.

With reference to Figures 1 and 2 a mounting 1 for securing to the cab or vehicle chassis respectively comprises a pair of parallel, spaced-apart metal pressings 2, 3 which are each formed with an entry slot 4 for receiving a striker 5 in the form of a transverse rod which is secured in use to the vehicle chassis or cab respectively. Between the pressings 2, 3 is pivotally mounted a locking jaw 6 on a transverse pivot pin 7 which is rivetted to the pressings 2 and 3. The jaw 6 has a mouth 8 which receives the striker 5 and normally maintains the striker in a fastened condition in slot 4 as shown in Figure 1.

A bifurcated locking pawl 9 is pivoted on a pivot pin 10 rivetted to pressings 2, 3 and has an inner free end 11 located between pressings 2, 3 and shaped normally to cooperate with a step 12 on the locking jaw 6 for holding the locking jaw in the fastened condition, under the force of an external spring, not shown, which acts, in a counterclockwise direction in Figure 1, on the outer free end 13 to which a suitable operating mechanism is connected in use. The operating mechanism is preferably actuated by a cable and a stationary lug 14 is welded to the pressing 2 to provide a fixed reaction point for the cable.

A detent in the form of a stamped lever 15 is pivotally mounted at its midpoint on the outside of

pressing 2 by a transverse pivot pin 16. The lever 15 is biassed in a clockwise direction by a coiled tension spring 17 connected between an eye 18 in the lever 15 and a pin 19 projecting outwardly from pressing 2. The upper end 21 in Figure 1 of the lever 15 is hook-shaped to define a hook mouth 20 and an adjacent arcuate abutment surface 22 for cooperation with a transverse abutment pin 23 projecting outwardly beyond the plane of pressing 2 from the locking pawl 9.

The lower end 24 in Figure 1 of the lever 15 is of substantially triangular shape to define an abutment surface 25 which extends substantially radially of the pivot pin 16 and is positioned to overlap with the slot 4 for engagement by the striker 5, as will be explained hereafter.

In the normal, fastened condition of the mechanism shown in Figures 1 and 2, the jaw 6 is prevented from moving clockwise to release striker 5 by the engagement between the end 11 of the locking pawl 9 and the step 12 in the jaw 6, and in that operative position of the pawl 9 the pin 23 on the pawl 9 is engaged by the surface 22 on the lever 15.

On actuation of the locking pawl 13 when it is desired to tilt the cab, the hook mouth 20 will snap onto the pin 23 under the force of spring 17 so as to hold the pawl 13, as shown in Figure 3, in a released position in which the end 11 is clear of shoulder 12. Then on immediate or subsequent lifting of the vehicle cab, the jaw 6 is capable of being pivoted in the clockwise direction by the striker 5 to permit the striker to leave the slot 4.

When, as in Figure 3, the hook mouth 20 is engaged on pin 23 the end 24 of the lever 15 overlaps to a substantial extent the plan area of the slot 4 so that when, as in Figure 4, the striker moves out of the slot 4 it engages with the abutment surface 25 of lever 15 to rotate the lever 15 in a counterclockwise direction. The shapes of the ends 21 and 24 of the lever 15 are chosen such that just as the striker 5 leaves the slot 4 the pin 23 is released from hook mouth 20 to enable the locking pawl 9 to pivot counterclockwise, under the force of the operating spring, sufficiently to bring surface 22 into engagement with the pin 23, thereby to release the locking pawl 9 once again. At this time the free end 11 of the locking pawl 9 engages a further step 26 on the jaw 6 to hold the jaw 6 in the open position shown in Figure 4 in which the mouth 8 is open to receive the striker 5 again when the cab is subsequently lowered onto the vehicle chassis.

It will be seen that once the locking pawl 9 has been actuated to bring it to the released position shown in Figure 3, it is then held in the released position by the lever 15, and is only allowed to move back towards the fastened position once the lever 15 itself has been released by the striker 5 as it leaves slot 4. This ensures that if on operation of the locking pawl 9 the cab is not immediately tilted and the operating mechanism for the locking pawl is released, the locking pawl 9 does not re-engage the jaw 6 which would otherwise result in breakage of the fastening mechanism if hydraulic pressure were subsequently to be applied to tilt the cab.

Also, since it is arranged that the lever 15 is only tripped just as the striker 5 leaves the slot 4, it is ensured that the locking pawl 9 is not released again until it is ensured that the cab has been fully released by the fastening mechanism.

It will be appreciated that when the striker 5 re-enters the slot 4 on tilting of the cab towards its normal position, the jaw 6 is rotated in a counterclockwise direction, and the pawl 9 and lever 15 return automatically to the positions shown in Figure 1.

The mechanism described uses only a small number of components and can be manufactured relatively cheaply.

Although the mechanism has been designed for use with a hydraulic tilting mechanism, it would be possible to use it with other tilting mechanisms.

CLAIMS

1. A releasable fastening mechanism of the kind set forth comprising a mounting for securing to the pivoted assembly or vehicle structure and a striker for securing respectively to the vehicle structure or pivoted assembly respectively, the mounting being formed with an entry slot to receive the striker, a pivotally mounted locking jaw arranged to be engaged and rotated by the striker to close over and retain the striker in the entry slot, a locking pawl resiliently urged towards the locking jaw for normally engaging a first formation on the jaw to retain the locking jaw in its closed position, an operating mechanism for releasing the locking pawl from its normal, operative position, and a resiliently biassed detent arranged to engage a second formation on the pawl when the locking pawl is moved to a released position thereby to prevent the locking pawl from immediately moving back to its operative position, the detent being arranged to be moved to a released position on engagement by the striker as the striker leaves the entry slot, thereby releasing the locking pawl for cooperation with the jaw.

2. A mechanism as claimed in claim 1 in which the detent is pivoted on the mounting at an intermediate position in the length of the detent and has one end positioned adjacent to the mouth of the entry slot for engagement by the striker as the striker leaves the slot, the opposite end being arranged to provide the engagement with the second formation on the locking pawl.

3. A mechanism as claimed in claim 2 in which the locking pawl is also pivoted on the mounting at an intermediate position in the length of the locking pawl, one end of the locking pawl being arranged to provide the engagement with the first formation on the jaw, and the other end of the locking pawl carrying the second formation.

4. A mechanism as claimed in any of the preceding claims in which the second formation is a pin on the locking pawl, and the portion of the detent which cooperates with the locking pawl is hook-shaped to engage around the pin.

5. A releasable fastening mechanism of the kind set forth and substantially as described with reference to the accompanying drawings.

Printed in the UK for HMSO, D8818935, 12 85, 7102.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.